

Please add claim 19 as follows.

DS
ELA
19. (Added) A gas opening/closing pin according to claim 1, wherein the diameter reducing portion has at least one step.

REMARKS

Claims 1-19 are pending. By this amendment, claims 1, 3 and 8-13 are amended for the Examiner's consideration. Claims 12 and 13 are amended to change the preamble wording from "The" to "A", to be consistent with the remaining dependent claims. Claim 19 is added for the Examiner's consideration. Attached hereto is a separate sheet entitled "Marked-Up Copy of Claims" showing a marked up copy of the amended claims. No new matter has been added. Reconsideration of the rejected claims in view of the above amendments and the following remarks is respectfully requested.

Drawing Objection

The drawings were objected to for not showing subject matter recited in claims 4 and 16. Claim 1 is amended to delete the language "two" stepped portion. Accordingly, claim 1 now recites an

"integrally formed stepped diameter reducing portion is formed at an upper end of the opening/closing".

Claim 4 recites the use of a reducing portion with a taper, in combination with the stepped diameter reducing portion. This feature is shown in Figure 11. Claim 16, on the other hand, recites the use of an integral washer, in combination with the stepped diameter reducing portion. This feature is shown in Figure 12, for example.

For these reasons, Applicants submit that the objection to the drawings should now be withdrawn. All of the recited features in the claims are shown in the drawings.

Prior Art Rejections

§102(b) Rejection

Claims 1, 2, 4, 6, 9 and 15 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,988,605 to Weisser et al. This rejection is respectfully traversed.

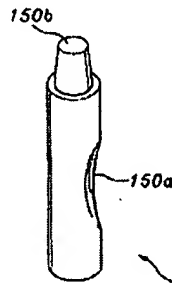
The claimed invention is directed to a gas opening/closing pin which opens and closes a gas inlet and outlet formed in a pipe holder which seals one end portion of a cylinder and moves the position of a piston in the cylinder. The gas opening/closing pin includes a recess or indented portion formed on a side of the outer peripheral surface of the central portion of the gas opening/closing pin. The remaining portions of the outer peripheral surface, at the central portion, remain substantially cylindrical. The recessed or indented portion opens and closes the gas inlet/outlet portion. An integrally formed stepped diameter reducing portion is formed at an upper end of the opening/closing pin.

Applicants' stress that the language "indented portion" is equivalent to the language "recess", and such amendment is made for clarity purposes only. The use of the language "indented portion" is clearly supported in the specification, as seen in Figure 11, for example, and such amendment is made in accordance with MPEP 608.01(o), which permits the use of terminology that is not in the specification. This language is clearly thus not new matter.

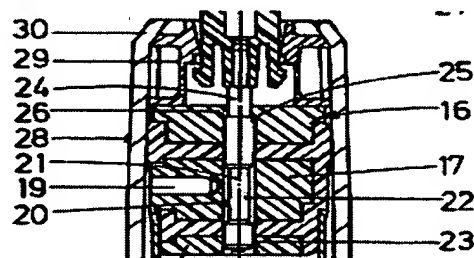
In essence, Applicants submit that the "indented portion" is defined as a recess in the surface (See, Merriam Webster's Collegiate Dictionary, 10th edition) or a central part lying lower than the margin on a side of the peripheral surface of the pin. This "indented portion" is only on a portion of the peripheral surface of the pin, itself; that is, the indented portion does not extend about the entire circumference of the opening/closing pin but rather to a portion thereof as clearly shown in Figures 8-13, elements 120a, 130a, 140a, 150a, 160a, and 170a.

This indented portion is clearly seen in Figure 11, for example, as reference numeral 150a (see, below). As discussed, this indented portion is not about an entire circumference of the pin, but only a portion thereof.

FIG 11



In contrast, Weisser et al. shows a reducing portion, but does not show the indented or recess portion on a side of the pin. In fact, much like that of the prior art, Weisser et al. shows an annular recess or ring. The annular recess 20 is formed entirely about the outer peripheral circumference of the pin, itself. This reference, nor does any other reference show a depressed portion or recess on a side of the outer peripheral circumference of the pin. This is a clearly a distinguishing feature. This annular recess is neither an indent nor a recess, in the same sense as recited in the claimed invention. This is clearly seen in the reproduction below.



For the above reasons, Applicants submit that the claimed invention is distinguishable over the Weisser et al. reference, and the §102(b) rejection should be withdrawn.

§103(a) Rejections

Claim 5 was rejected under 35 U.S.C. §103(a) over Weisser et al. in view of U.S. Patent No. 3,659,573 to Bennet. Claim 7 was rejected under §103 over Weisser et al. in view of U.S. Patent No. 4,934,749 to Folarin. Claims 3, 8, 10-14 were rejected under §103(a) over Weisser et al. in view of U.S. Patent No. RE.18,696 to Messier or, alternatively, to U.S. Patent No. 6,129,343 to Ecartot. Claims 10, 13, 14, 17, and 18 were rejected under §103(a) over DE-19853012 (U.S. Patent No. 6,241,316) in view of Messier or, alternatively, to Ecartot. Claim 16 was rejected under §103(a) over Weisser et al., in view of DE-19853012.

Independent Claim 10

Applicants first traverse the rejections of claim 10 under

- (i) 35 U.S.C. §103(a) over Weisser et al. in view of U.S. Patent No. RE.18,696 to Messier or, alternatively, to U.S. Patent No. 6,129,343 to Ecartot, or
- (ii) 35 U.S.C. §103(a) over U.S. Patent No. 6,241,316 in view of Messier or, alternatively, to Ecartot.

Claim 10 recites a gas opening/closing pin which has a

recessed portion which opens the gas inlet and outlet is formed on a side of the outer peripheral surface of the central portion of the gas opening/closing.

The recessed portion of the present invention does not extend about the entire circumference of the opening/closing pin but rather to a portion thereof as clearly shown in Figures 8-13, elements 120a, 130a, 140a, 150a, 160a, and 170a. the recessed portion is used to open and close the gas inlet and outlet portion.

Weisser et al., however, shows an annular recess or ring formed entirely about the peripheral circumference of the pin, itself. This reference nor does any other reference show a recessed portion which is formed on a side of the outer peripheral surface of the central portion of the gas opening/closing. Messier, on the other hand, is very similar to that of Weisser et al. As seen in Figure 4, for example, the pin includes an annular recess about an entire peripheral circumference of the pin. In fact, the only appreciable difference is that the annular recess, shown at about 18, has a smooth transition between the portion forming the annular recess, itself, and the outer peripheral surface of the pin. Also, contrary to the Examiner's contention at page 7 of the office action, Messier does not have a plurality of recesses but, as one of ordinary skill in the art would appreciate, is simply a single annular recess.

As to Ecarnot, directional grooves 74 are shown in a secondary piston 70. The secondary piston is mounted to the piston rod (i.e., pin) (See, col. 3, lines 15-25 and Figure 11.) These grooves (i) are not recessed portions as defined by the claimed invention and (ii) are not in the pin (i.e., piston rod 24), itself. Additionally, these grooves 74 do not even open and close to a gas inlet/outlet as should be understood by the claimed invention. Instead, the grooves are provided for dampening or speed reducing effects caused by the transfer of gas and oil between two chambers 78 and 80. The grooves are not for opening and closing of a gas inlet/outlet. In fact, it is only during the manufacture of the device of Ecarnot in which gas and oil is charged into the system (col. 3, lines 23-26), in essence eliminating the need for the annular recess of Weisser or other references.

As seen in Figures 4 and 6 and discussed at columns 3 and 4,

The arrows B in FIG. 4 show how the pressurised gas transfers from chamber 78 into chamber 60 during this movement, the gas being compelled to flow through the labyrinthine passage 52. .

During this transfer of gas pressure, corresponding transfer of gas from chamber 80 to chamber 78 (FIG. 1) takes place through the grooves 74 in the damping piston 70.

As the piston 26 continues to move, its face 42 will come in contact with the face 79 of the damping piston 70. This contact will close off the end 50A of the bore 50. Now, gas pressure can only transfer from chamber 78 into chamber 60 through the narrow feed channel 62. ... If the quantity of oil 76 in the cylinder 10 is sufficient, some of this oil will then transfer from chamber 80 into chamber 78, through the grooves 74 in the damping piston 70, and thence through narrow feed channel 62, bore 50 and the labyrinthine passage 52, into chamber 60, providing further speed reduction. Piston 26 then forces piston 70 into contact with the abutment 22, and further piston movement stops.

.... The presence of the damping piston 70 and its effect in closing off the end of the bore 50, so as to force the transferring gas (or liquid) to pass through the narrow feed channel 62, enables the speed of movement of the piston rod to be varied during its travel.

(Emphasis added.)

In view of the above, Applicants also contend that one of ordinary skill in the art would not have been motivated to make the modification of the Weisser et al. reference, as suggested by the Examiner. First, Weisser et al. does not even contemplate the features for which Ecartot uses the piston portion and groove assembly, i.e., dampening due to transfer of gas between chambers. Second, Weisser et al. only shows the pin, itself, used to open and close the gas inlet. However, Ecartot shows the grooves in a piston portion surrounding the pin (Figure 11, for example), which are not used for opening or closing a gas inlet/outlet. Thus, the grooves of Ecartot are used for a much

different purpose than that of the annular recess of Weisser, and one of ordinary skill would not have been motivated to make a modification as suggested by the Examiner. Third, the gas is charged into the Ecarnot system during manufacture and does not have a gas inlet/outlet as recited in the claimed invention. Thus, again, one of ordinary skill in the art would have no motivation to use the grooves with the Weisser device in the manner recited by the claimed invention.

Now, Jean (6,241,316) is similar to the Weisser et al. reference. That is, Jean also shows an annular recess or ring. Contrary to the Examiner's statement on pages 4 and 5 of the office action, Jean does not show a recess formed on the outer peripheral surface of the central portion of the pin, as recited in the claimed invention. The recess on a side of the pin, as recited in the claimed invention, is clearly distinguished from the Jean annular recess. Additionally, and as discussed above, the Messier reference also does not show a recess as recited in the claimed invention. Messier shows an annular recess very similar to that of Weisser et al. As seen in Figure 4, the pin includes an annular recess which has a smooth transition between the portion forming the annular recess, itself, and the outer peripheral surface of the pin.

As to Ecarnot, only grooves are shown. The grooves, again, are on a piston portion. These grooves are not on the pin, itself. The grooves are used for a much different purpose than that of the annular recess of Jean. For the reasons thus discussed, the combination of Jean and Ecarnot would not result in the claimed invention.

Thus, the Examiner has failed to establish a prima facie case of obviousness since the combination of references do not teach or suggest all of the claimed limitations. Applicants thus request withdrawal of the §103(a) rejections with respect to claim 10.

Dependent Claims

Applicants traverse the rejections of the dependent claims set forth under §103(a) and submit that these rejections are also overcome. First, the dependent claims depend from distinguishable independent claims. For this reason, the dependent claims include

the novel and distinguishable features of the independent claims and are thus in condition for allowance.

The dependent claims also include allowable subject matter, themselves. By way of example, claim 8 recites a streamlined shape. The Examiner asserts that Messier teaches in Figure 4 that the pin has a streamlined-shaped recess in the area of the line associated with element 18, and that according to the argument on page 6 of the office action, "satisfies the well-known and accepted definition of 'streamlined'". However, element 18 is an annular shaped recess, which is not "formed on a side of the central portion." The annular-shaped recess has, admittedly, a smooth transition. But, this smooth transition is not a streamlined recess shape, and this recess is an annular recess about an entire circumference of the pin. Additionally, Applicants reviewed all of the cited and applied references carefully and was unable to identify a pin having a diameter reducing portion which has both a stepped portion and a tapered end.

For the above reasons, Applicants submit that all of the features of the claimed invention are not shown in the combination of references as suggested by the Examiner. Applicants request withdrawal of the §103 rejection.

Added Claim

Claim 19 is added for the Examiner's consideration. Claim 19 is identical to the originally filed claim 3, which was previously amended to depend from claim 10.

Conclusion

In view of the foregoing amendments and remarks, Applicant submits that all of the claims are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue. The Examiner is invited to contact the undersigned at the telephone number listed below, if needed. Applicant hereby makes a written conditional petition for extension of time, if required.

Please charge any deficiencies in fees and credit any overpayment of fees to
Attorney's Deposit Account No. 23-1951.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Andrew M. Calderon', with a stylized flourish at the end.

Andrew M. Calderon
Registration No 38,093

McGuireWoods, LLP
Suite 1800
1750 Tysons Blvd
McLean, VA 22102
(703) 712-5426

Marked-up Copy of Claims

1. (Twice Amended) A gas opening/closing pin which opens and closes a gas inlet and outlet formed in a pipe holder which seals one end portion of a cylinder and moves the position of a piston in the cylinder, wherein at least one [recess] indented portion which is adapted to [opens] open the gas inlet and outlet is formed on a side of the outer peripheral surface of the central portion of the gas opening/closing pin and an integrally formed [two] stepped diameter reducing portion is formed at an upper end of the opening/closing pin.

3. (Twice Amended) A gas opening/closing pin according to claim [10] 12, wherein the diameter reducing portion has at least one step.

8. (Amended) A gas opening/closing pin according to claim 1, where the [recess] indented portion formed on the outer peripheral surface of the central portion of the gas/opening closing pin is streamlined shaped.

9. (Amended) A gas opening/closing pin according to claim 1, where the [recess] indented portion formed on the outer peripheral surface of the central portion of the gas/opening closing pin has an annular shape.

10. (Amended) A gas opening/closing pin which opens and closes a gas inlet and outlet formed in a pipe holder which seals one end portion of a cylinder and moves the position of a piston in the cylinder, wherein at least one streamlined [recess] recessed portion which opens the gas inlet and outlet is formed on a side of the outer peripheral surface of the central portion of the gas opening/closing pin and one of an integrally formed washer-shaped boss body portion is formed at a lower end of the opening/closing

pin [and an integrally formed diameter reducing portion is formed at an upper end of the opening/closing pin].

11. (Amended) [The] A gas/opening closing pin according to claim 1, wherein the [streamlined-shaped recess] recessed portion comprises a plurality of streamlined-shaped recesses.

12. (Amended) [The] A gas opening/closing pin according to claim 10, further comprising an integrally formed diameter reducing portion is formed at an upper end of the opening/closing pin wherein the lower end portion of the diameter reducing portion of the gas opening/closing pin is caught by an annular jaw corresponding to the diameter reducing portion of the gas opening/closing pin and installed in the pipe holder.

13. (Amended) [The] A gas opening/closing pin according to claim [10] 12, wherein at least a part of the diameter reducing portion is tapered.